

5,810,569

|  |  |      |            |
|--|--|------|------------|
| Consommation<br>et Corporations Canada | Consumer and<br>Corporate Affairs Canada | (11) | 2,001,688  |
| Bureau des brevets                     | Patent Office                            | (22) | 1989/10/27 |
| Ottawa, Canada<br>K1A 0C9              |  | (43) | 1991/04/27 |
|  |  | (52) |            |

**(19) (CA) APPLICATION FOR CANADIAN PATENT (12)**

**(54) Nail Hardener**

**(72) Orlowski, Karen S. - Canada ;**

**(73) Orlowski, Karen S. - Canada ;**

**(57) 17 Claims**

**Notice: The specification contained herein as filed**

**Canada**

CCA 3254 (10-89) 41

2001688

ABSTRACT

A composition for treatment of human nails or cuticles comprising the following ingredients in percentage by volume based on the volume of the total composition:

|               |                     |
|---------------|---------------------|
| Cresylic acid | less than 1%        |
| Soybean oil   | approximately 3%    |
| Gilsonite     | approximately 6.25% |
| Mineral oil   | remainder           |

2001688

FIELD OF INVENTION

This invention relates to a composition for treatment of human nails or cuticles and is particularly concerned with the provision of an improved composition for treating and maintaining nails and cuticles in a supple, healthy condition by means of applying a composition including soybean oil, a sealant, and a preservative and anti fungal and anti bacteria compound.

BACKGROUND TO THE INVENTION

Long fingernails are generally considered to be fashionable, but are frequently difficult to grow. Furthermore such nails become dry, brittle, and therefore susceptible to cracking or splitting.

Various attempts have heretofore been employed in order to harden, strengthen or moisturize the cuticles or keratinous tissues such as human fingernails or toenails.

For example, United States Patent No. 3,887,702 teaches treating fingernails and toenails to prevent or mitigate brittleness with attendant splitting and breaking and to promote growth and generally enhance the quality of the nail by the topical application of liquid comprising soybean oil, sunflower oil and vitamin E.

Moreover, United States Patent No. 3,928,561 teaches a liquid comprising soybean oil, sunflower oil, vitamin E and alcoholic coal tar solution.

Furthermore, United States Patent No. 4,530,828 discloses a nail conditioning composition comprising an aqueous emulsion of sodium laurel sulphate, urea and hydrolyzed animal protein in the aqueous phase and mineral oil, cholesterol and lipids in the oil phase, said lipid being cetyl, alcohol, cetyl, palmitate or a base salt of palmitic or stearic acids.

Yet another composition is taught by United States Patent No. 4,687,827 which shows the brushing of cyanoacrylates in fingernail polish systems.

Finally United States Patent No. 4,708,866 discloses a self-curing nail composition containing methacrylate monomers, methacrylate polymers, calcium containing composition and a lubricant.

These and other compositions have a limited utility in that some of these compositions tend to dry out the toenail or fingernail and damage to cuticle, particularly when such compositions include formaldehyde.

It is an object of this invention to utilize and improve nail conditioning composition than disclosed by the prior art.

The broadest aspect of this invention relates to a composition for treatment of human nails or cuticles comprising the following ingredients in percentage by volume based on the volume of the total composition:

|  |   |
|--|---|
| An emollient                               | at least 3%   |
| A preservative                             | an effective percentage to preserve said emollient  |
| A natural resin                            | an effective percentage to seal said emollient absorbed by said human nail or cuticle           |
| An anti bacterial and anti fungal compound | an effective percentage to deter the formation of bacterial or fungus on said nails or cuticles |
| A carrier                                  | the remainder   |

It is the broadest aspect of this invention to provide a composition for treatment of human nails or cuticles comprising the following ingredients in percentage by volume based on the volume of the total composition:

|  |  |
|--|--|
| A preservative                             | less than 1%   |
| Soybean oil                                | approximately 3%   |
| A sealant                                  | approximately 6.25%  |
| An anti bacterial and anti fungal compound | an effective percentage to deter the formation of bacteria or fungus on said nails or cuticles |
| A carrier                                  | the remainder  |

It is another aspect of this invention to provide a composition for treatment of human nails or cuticles comprising essentially an aqueous emulsion containing the following ingredients in percentage by volume based on the volume of the total composition:

|               |                     |
|---------------|---------------------|
| Cresylic acid | less than 1%        |
| Soybean oil   | approximately 3%    |
| Gilsonite     | approximately 6.25% |
| Mineral oil   | the remainder       |

Moreover it is another aspect of this invention to provide a method of treating human nails or cuticles by applying the composition as disclosed by said nail or cuticle wherein said soybean oil moisturizes said nails or cuticles, said gilsonite seals said soybean oil into said nail or cuticle, said cresylic acid acts as a preservative for said soybean oil, and as an anti bacterial anti fungal agent on said nail and cuticle, and said mineral oil acts as a dilatant and carrier for said soybean oil, cresylic acid and said gilsonite.

#### DETAILED DESCRIPTION OF INVENTION

Keratinous tissues such as human fingernails or toenails when viewed under a microscope consist of a series of hollow tubes. Over time the human fingernail or toenail loses moisture either through age, exposure to the elements, or

naturally in which event the tubes become slightly separated when viewed under a microscope which causes the nail to flake, split or crack.

It has been found that by applying the composition as disclosed herein, the tubes absorb said composition and swell back up again so as to produce a supple and healthy nail.

Furthermore the cuticle around the fingernail or toenail tends to overgrow and split and tear, as in the case of a hangnail. It has been observed that by applying the composition as disclosed herein the cuticles become healthier and consistent thereby permitting the human body to direct more energy to the growth of the fingernail rather than to healing the cuticle area. Therefore it has been observed that by using the composition as disclosed herein the nail becomes thicker and healthier.

The composition of this invention comprises the emollient consisting of, an emollient such as soybean oil, a natural resin, namely gilsonite, which seals the soybean oil into the nail and cuticle, a preservative namely cresylic acid which acts as a preservative for the soybean oil, and a carrier such as mineral oil which is used as a dilatant and carrier for the ingredients of the composition.

It should be noted that phenols could be used as the anti bacterial or anti fungal compound. Furthermore other emollients which can be absorbed by the nails could be used.

In particular the composition of this invention comprises an aqueous emulsion containing the following ingredients in percentage by volume based on the volume of the total composition:

|               |                     |
|---------------|---------------------|
| Cresylic acid | less than 1%        |
| Soybean oil   | approximately 3%    |
| Gilsonite     | approximately 6.25% |
| Mineral oil   | remainder           |

The cresylic acid acts as a preservative for the soybean oil, and it has been found that cresylic acid may be replaced with more soybean oil provided that the soybean oil has a preservative associated therewith.

Furthermore the cresylic acid as an anti bacterial and anti fungal agent. The cresylic acid acts as a catalyst for absorption of said soybean oil by said nail or cuticle and catalyst for adherence of the gilsonite to the nail or cuticle.

Gilsonite is a natural hydrocarbon resin which has been found in the State of Utah and Colorado and tends to provide the composition with a dark colour. Furthermore, the gilsonite acts as a sealant for sealing in the soybean oil into the nail of the human body and is substantially waterproof.

The soybean oil acts as an emollient and is actually absorbed into the tissues of the fingernail, toenail or cuticle.

A carrier or dilatant such as mineral oil is utilized so as to carry and dilute the other ingredients of the composition. The mineral oil is not absorbed by the fingernails.

It has been observed that variation to the composition or formula may be made while still providing the desired results. In particular it has been found that the Soybean oil and carrier are interchangeable; in other words the amount of Soybean oil may be increased from 3% to a higher value provided that there is a corresponding decrease in the carrier. For example if the amount of soybean oil is increased by 10% to 13% one would use 10% less mineral oil and an effective increase in preservative in order to preserve the increased amount of soybean oil. It is important, however, that one use at least 3% of volume of soybean oil.

The composition may be applied topically to the fingernails and toenails as well as the cuticles by a brush. The composition is applied to the top and underside of the nail as well as to the cuticle area by said brush. Favourable results have been achieved by utilizing a brush which is the subject matter of a Patent Application filed by Applicant on even date of this Application. Such brush essentially comprises bristles which are cut at an angle to the handle so as to facilitate easy application of the composition to both the top and underside of

the nail as well as the cuticle. Furthermore the bristles of said brush are rounded so as to mitigate any damage to the cuticle which may be caused by utilizing a brush having a different configuration. The brush is used to clean the nail or cuticle as well as to manicure the cuticle by removing any dry and or excessive cuticle while mitigating damage to the cuticles.

It has been found that the fingernail and toenail of the user of the composition becomes more transparent and through use actually thickens and hardens and becomes more supple and flexible which minimizes the risk of cracking or breaking due to flexure. Furthermore by applying the composition to cuticle the cuticle recedes and becomes healthier and is less likely to split or tear or produce hang nails.

It is contemplated that once the composition has been absorbed other compositions such as nail polish may be applied thereto in a manner well known to those persons skilled in the art.

Although the preferred embodiment as well as the operation and use have been specifically described, it should be understood that variations in the preferred embodiment could easily be achieved by a man skilled in the art without departing from the spirit of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A composition for treatment of human nails or cuticles comprising the following ingredients in percentage by volume based on the volume of the total composition:

|                                      |  |
|--------------------------------------|--|
| Emollient means                      | at least 3%  |
| Preservative means                   | an effective percentage to preserve said Emollient means                                       |
| Natural resin means                  | an effective percentage to preserve said Emollient absorbed by said human nail or cuticle      |
| Anti bacterial and anti fungal means | an effective percentage to deter the formation of bacteria or fungus on said nails or cuticles |
| Carrier means                        | the remainder  |

2. A composition as claimed in claim 1 wherein said emollient means comprises soybean oil.

3. A composition as claimed in claim 2 wherein said preservative means comprises cresylic acid.

4. A composition as claimed in claim 3 wherein said cresylic acid acts as said anti bacterial and anti fungal means.

5. A composition as claimed in claim 4 wherein said natural resins means comprises gilsonite.

6. A composition as claimed in claim 5 wherein said percentage of soybean oil is greater than 3% provided that the percentage of carrier means is correspondingly reduced.

7. A composition as claimed in claim 6 wherein said cresylic acid comprises less than 1% of said composition.

8. A composition as claimed in claim 7 wherein said gilsonite comprises approximately 6.25% of said composition.

9. A composition as claimed in claim 8 wherein said carrier means comprises mineral oil.

10. A composition for treatment of human nails or cuticles comprising the following ingredients in percentage by volume based on the volume of the total composition:

|                                      |  |
|--------------------------------------|--|
| Preservative means                   | less than 1%   |
| Soybean oil                          | approximately 3%   |
| Sealant means                        | approximately 6.25%  |
| Anti bacterial and anti fungal means | an effective percentage to deter the formation of bacterial and fungus on said nails or cuticles |
| Carrier means                        | remainder  |

11. A composition as claimed in claim 10 wherein said carrier means comprises mineral oil.

12. A composition as claimed in claim 11 wherein said preservative means comprises cresylic acid.

13. A composition as claimed in claim 12 wherein said cresylic acid acts as said anti bacterial and anti fungal means.

14. A composition as claimed in claim 13 wherein said sealant means comprises gilsonite.

15. A composition for treatment of human nails or cuticles comprising an aqueous emulsion containing the following ingredients in percentage by volume based on the volume of the total composition:

|                    |                     |
|--------------------|---------------------|
| Preservative means | less than 1%        |
| Cresylic acid      | less than 1%        |
| Soybean oil        | approximately 3%    |
| Gilsonite          | approximately 6.25% |
| Mineral oil        | remainder           |

16. In a method of treating human nails or cuticles by applying the composition as claimed in claim 5 on said nails or cuticles wherein said soybean oil moisturizes said nails or cuticles, said gilsonite seals said soybean oil into said nail or cuticle, said cresylic acid acts as a preservative for said soybean oil, and as an anti bacterial anti fungal agent on said nail and cuticle, and said mineral oil acts as a dilatant or carrier for said soybean oil, cresylic acid and said gilsonite.

17. In a method as claimed in claim 13 wherein said cresylic acids acts as a catalyst for absorption of said soybean oil by said nail or cuticle and catalyst for adherence of said gilsonite to said nail or cuticle.